The International Seabed Authority and the Common Heritage of Mankind
The 1982 UN Convention on the Law of the Sea establishes a legal regime which is based on maritime zones. Generally speaking, coastal States’ competence decreases as the distance from the coast increases. Ocean space beyond national jurisdiction consists of the high seas and the Area, which is defined as the seabed and the ocean floor beyond the limits of national jurisdiction. A special legal regime for the area is elaborated in Part XI of the Convention.

Article 136 of the Convention provides that the Area and its resources are the common heritage of mankind. This is regarded as such a fundamental principle that Article 311(6) prohibits States Parties to the Convention from making any amendments to the basic principle relating to the common heritage. The common heritage principle has four fundamental elements:

- No State may claim or exercise sovereignty or sovereign rights over any part of the Area or its [mineral] resources (Article 137 (1))
- All rights in the resources of the Area are vested in mankind as a whole (Article 137 (2))
- Deep seabed mining shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, and taking into particular consideration the interests and needs of developing States (Article 140)
- The Area shall be open to use exclusively for the peaceful purposes by all States (Article 141)

To give effect to these principles, the Convention established the International Seabed Authority as the organisation responsible to manage and control access to the resources of the Area and through which to share the financial and other economic benefits derived from deep seabed mining.

This presentation provides background information on the Authority’s mandate and activities including:

- The regulatory regime for the area
- The site banking system and the enterprise
- The protection of the marine environment
- Training and capacity building
- Promotion of Marine Scientific Research
- Revenue-sharing under article 82
- The structure of the authority
Section 2: Marine minerals

SUMMARY

Marine minerals are found in all the world’s oceans. These deposits may be many times richer than land-based deposits and contain many years supply of key strategic metals such as copper, cobalt, nickel and manganese.

The recovery of minerals from the seabed and our knowledge of new sources of marine minerals have developed rapidly during recent decades, yielding significant economic returns and promising potentially valuable additions to the world’s resource base. Commercial exploitation of hard minerals has so far been limited to deposits originating from mechanical and chemical erosion of rocks on continents and transported to the ocean primarily by rivers (e.g. diamond mining off Namibia). The newly discovered resources, some of them richer than any land-based deposits, derived partly from land sources and partly from natural processes within and beneath the oceans, often in the deepest parts of the sea.

Mineral deposits of the most interest to deep seabed miners include polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts.

First discovered in 1868, polymetallic nodules are found in all the world’s oceans, mostly at depths of 4000 to 6000 m. They are spherical objects, ranging between about 5 to 10 cm in diameter and contain manganese, copper, nickel, cobalt as well as iron and significant concentrations of rare earth elements.

Polymetallic sulphides (seafloor massive sulphides) were first discovered in 1979. Typically, they are deposited around hydrothermal vents on the mid-ocean ridges at depths between 1000 to 4000 m. They contain very rich concentrations of copper as well as zinc, silver and gold.

Cobalt-rich crusts precipitate from seawater as thin layers (up to 25 cm thick) on volcanic rocks of seamounts and submerged volcanic mountain ranges at depths between 400 to 3000 m. The richest crusts are found in the EEZs of island nations in the Western Pacific. It is estimated that one seabed mining site could provide up to 25% of the annual global market for cobalt. Cobalt crusts also contain significant concentrations of rare earth elements.
Why mine in the sea?

SUMMARY

Increased demand for key strategic minerals combined with tightening of land-based supplies and advances in technology mean that deep seabed mining is an increasingly attractive option for investment in mineral development.

Marine minerals in a green economy

An electric vehicle contains over twice the Cu content of the average car (2 km of copper wiring). Ni and Cu are essential for the batteries in hybrid cars.

Each wind turbine needs 500 kg of nickel, 1000 kg of copper.

The demand for metals and minerals continues to rise, including to meet the demands of the green economy. Copper consumption over the last 25 years accounted for half of all copper ever mined. Global consumption over the next 25 years is expected to exceed all of the copper ever mined to date.

Land resources are increasingly stretched, increasing the economic, social and environmental costs of mining. In addition, the world’s supply of key strategic metals is distributed unevenly across the globe. For example, the DRC controls 47% of global cobalt reserves; Chile controls 30% of global copper reserves; South Africa possesses 80% of global manganese reserves; while China controls 95% of the global market in rare earth elements.

States and private sector mining interests are keen to explore the potential of marine minerals both within and beyond national jurisdiction. Advances in technology and a stable regulatory regime, both in national jurisdictions and in the international Area, mean that deep seabed mining is an increasingly attractive option for investment in mineral development.
Section 3: The Regulatory Regime for the Area

SUMMARY

Deep seabed mining may be carried out only by qualified entities under a contract with the International Seabed Authority. Qualified entities must be sponsored by one or more States parties to the Convention.

The regulatory regime for the area is based on the so-called “parallel system” which gives equal rights of access to mine sites to States parties to the Convention, state enterprises, and private sector entities, as well as to the developing countries (including the landlocked and geographically disadvantaged countries) either in their own right or through a special organ of the International Seabed Authority to be known as the Enterprise.

A fundamental feature of the regime is that exploration and exploitation may be carried out only on the basis of a contract with the International Seabed Authority, acting on behalf of mankind as a whole. Furthermore, every state enterprise and private sector entity engaged in deep seabed mining must be sponsored by a State party to the Convention.

The Authority is responsible for issuing comprehensive rules, regulations and procedures to regulate prospecting, exploration and exploitation of marine minerals in the Area. As of 2013, the Authority has issued regulations on prospecting and exploration for three types of marine mineral resource, as well as detailed rules and procedures on the collection of environmental data during exploration.

<table>
<thead>
<tr>
<th>The ISA Mining Code</th>
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</thead>
<tbody>
<tr>
<td>Regulations on prospecting and exploration for polymetallic nodules (2000)</td>
</tr>
<tr>
<td>Regulations on prospecting and exploration for polymetallic sulphides (2010)</td>
</tr>
<tr>
<td>Regulations on prospecting and exploration for cobalt-rich ferromanganese crusts (2012)</td>
</tr>
<tr>
<td>Recommendations for guidance of contractors on the assessment of environmental impacts (issued 2001, revised 2010 and 2013)</td>
</tr>
</tbody>
</table>

No regulatory regime exists as yet for exploitation. The Convention itself contained a detailed, highly prescriptive model covering the financial terms for exploitation, but these were eliminated as part of the political compromise reached in the 1994 Implementation Agreement in order to allow the Convention to enter into force with the support of the industrialised countries. Instead, the 1994 Agreement contains a set of general principles to guide the future financial terms of seabed mining. These require, for example, that the system of payments to the Authority should be fair both to contractors and to the Authority and that the rates of payment shall be within the range of those prevailing in respect of land-based mining of the same or similar minerals in order to avoid giving seabed miners a competitive advantage or disadvantage (1994 Agreement, Annex, section 8).
Exploration contracts: Polymetallic nodules

SUMMARY

The ISA has approved 14 contracts for exploration for polymetallic nodules, covering almost 1 million km² of seafloor. Nearly all of these (13) are located in the Clarion Clipperton Zone in the Central Pacific Ocean. The exploration area for India is located in the central Indian Ocean basin.

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Sponsoring State(s)</th>
<th>Size of area (Km²)</th>
<th>Date of contract</th>
<th>Date of expiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government of India</td>
<td>India</td>
<td>75,000</td>
<td>2002</td>
<td>2017</td>
</tr>
<tr>
<td>Ifremer</td>
<td>France</td>
<td>75000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>Deep Ocean Resources Development Co. Ltd.</td>
<td>Japan</td>
<td>75,000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>Yuzhmorgeologiya</td>
<td>Russia</td>
<td>75.000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>China Ocean Minerals Research &amp; Development Association (COMRA)</td>
<td>China</td>
<td>75.000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>Interoceanmetal Joint Organization</td>
<td>Bulgaria, Cuba, Czech Republic, Poland, Russia, Slovakia</td>
<td>75,000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>Government of Korea</td>
<td>Korea</td>
<td>75,000</td>
<td>2001</td>
<td>2016</td>
</tr>
<tr>
<td>Federal Institute of Geosciences (BGR)</td>
<td>Germany</td>
<td>75,000</td>
<td>2006</td>
<td>2021</td>
</tr>
<tr>
<td>Nauru Ocean Resources Inc.</td>
<td>Nauru</td>
<td>75,000</td>
<td>2012</td>
<td>2027</td>
</tr>
<tr>
<td>Tonga Ocean Minerals Ltd.</td>
<td>Tonga</td>
<td>75,000</td>
<td>2012</td>
<td>2027</td>
</tr>
<tr>
<td>GTEC Sea Mineral Resources NV</td>
<td>Belgium</td>
<td>75,000</td>
<td>2013</td>
<td>2028</td>
</tr>
<tr>
<td>UK Seabed Resources Ltd.</td>
<td>UK</td>
<td>58,600</td>
<td>2013</td>
<td>2028</td>
</tr>
<tr>
<td>Marawa Research &amp; Exploration Ltd.</td>
<td>Kiribati</td>
<td>75,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK Seabed Resources Ltd.</td>
<td>UK</td>
<td>148,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exploration contracts: Polymetallic sulphides

SUMMARY

Contracts for exploration or polymetallic sulphides have been approved in the Atlantic and Indian oceans. Each contract covers an area of 10,000 km² divided into 100 blocks of 10 km² in size, within an overall constraint area of 300,000 km².

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Sponsoring State(s)</th>
<th>Date of contract</th>
<th>Date of expiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Natural Resources and Environment</td>
<td>Russia</td>
<td>29 October 2012</td>
<td>2027</td>
</tr>
<tr>
<td>China Ocean Minerals Research &amp; Development Association (COMRA)</td>
<td>China</td>
<td>18 November 2011</td>
<td>2026</td>
</tr>
<tr>
<td>Government of Korea</td>
<td>Korea</td>
<td>To be signed</td>
<td></td>
</tr>
<tr>
<td>Ifremer</td>
<td>France</td>
<td>To be signed</td>
<td></td>
</tr>
<tr>
<td>Government of India</td>
<td>India</td>
<td>Under application</td>
<td></td>
</tr>
</tbody>
</table>
Polymetallic sulphides: The block allocation system

SUMMARY

Maximum 100 blocks (10 km x 10 km). Top map shows hypothetical example of distribution of clusters of contiguous blocks within a constraint area superimposed on known resource distribution in the Central Atlantic. Bottom illustration shows hypothetical constraint area of 300,000 km² rectangle, where longest side does not exceed 1,000 km.

Ashadze I field, Mid-Atlantic Ridge (courtesy G. Cherkashov)
Exploration contracts: Cobalt-rich crusts

SUMMARY

Regulations permitting exploration for cobalt-rich crusts were adopted in 2012. So far, applications for contracts have been filed by entities from China, Japan and Russia.

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Sponsoring State(s)</th>
<th>Date of approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Ocean Minerals Research &amp; Development Association (COMRA)</td>
<td>China</td>
<td>2013</td>
</tr>
<tr>
<td>Japan Oil, Gas and Metals National Corporation (JOGMEC)</td>
<td>Japan</td>
<td>2013</td>
</tr>
<tr>
<td>Ministry of Natural Resources and Environment</td>
<td>Russia</td>
<td>Under application</td>
</tr>
</tbody>
</table>
Cobalt crusts: The block allocation system

SUMMARY

Total exploration area 3,000 Km², to be relinquished down to 500 Km². Each exploration block no more than 20 Km², but may be square or rectangle. Maximum of 150 blocks, which shall be arranged in clusters of maximum 5 contiguous blocks. Clusters need not be contiguous but may be proximate and in a constraint area measuring 550 x 550 Km.

Example: Wilde Guyot with cluster of 10 blocks (5 x 5 km)

Example: Fedorov Guyot with 20 blocks (5 x 5 km) in 2 clusters

3D model of seamount guyot (Source ISA)
Section 4: Site banking and the Enterprise

SUMMARY

The site-banking system ensures that potential mine sites are available for the Enterprise all for use by developing countries.

To ensure the availability of potential mine sites for the Enterprise or for developing countries, each entity applying for an exploration contract sponsored by a developed country is required to propose two sites of equal estimated commercial value. One site is allocated to the applicant and the other is retained by the authority as a reserved area (“site banking”).

The reserved areas are available for use by the Enterprise or, if the Enterprise is not in a position to use it, the area is available to any developing country or to any entity sponsored by a developing country. In recent years this provision has enabled entities sponsored by Nauru, Tonga and Kiribati to enter into contracts for the exploration of reserved areas. If the reserved area is not used within 15 years, the entity that originally contributed the area is entitled to utilise it.

The Enterprise is intended to be a commercial arm of the Authority. As originally envisaged, it would conduct seabed mining for the benefit of the developing countries and would have first call on the reserved areas. The concept of the Enterprise as a commercial arm of the Authority was controversial and under the 1994 Agreement, restrictions were placed on the operations of the Enterprise. The Enterprise will not come into operation until such time as the Council issues a directive for that purpose. Furthermore, obligations on States parties to fund the Enterprise have been removed and the Enterprise must conduct its initial operations through joint ventures based on sound commercial principles. Until such time as the Council issues a directive, the secretariat of the Authority is to perform certain limited functions of the Enterprise.
Section 5: Protection of the marine environment

SUMMARY

ISA has the responsibility to establish international rules, regulations and procedures to prevent, reduce and control pollution of the marine environment from activities in the Area, and to protect and conserve the natural resources of the Area.

Whilst we do have a broad understanding of the potential impacts of deep seabed mining on the marine environment (see diagram), one problem for the Authority is that the current level of understanding of deep sea ecology is not yet sufficient to allow conclusive risk assessment of the effects of large-scale commercial mining. In order to be able in future to manage the impact of mineral development in the Area in such a way as to prevent harmful effects to the marine environment, it will be essential for the Authority to have better knowledge of the state and vulnerability of the marine environment in mineral-bearing provinces.

This includes, inter alia, knowledge of baseline conditions in these areas, the natural variability of these baseline conditions and their relationship with impacts related to mining. It is also important that such data be standardized, including taxonomic information. For this reason, many of the technical workshops and research programmes supported by the Authority have been aimed at obtaining a better understanding of the marine environment from recognized experts in the field.

The Regulations issued by the Authority emphasise the progressive nature of exploration and mining activities. Contractors are required to collect baseline data as an integral part of their exploration programmes and to provide these data to the Authority in standardised formats. The Legal and Technical Commission issues guidance to contractors on the baseline data that should be collected and the activities that will require prior environmental impact assessment, including test or pilot mining.
Areas of particular environmental interest

SUMMARY

In 2012, the Council approved an environmental management plan for the CCZ, including a network of nine areas of particular environmental interest, each 400 km² in size.

In approving the plan (ISBA/18/C/22), the Council noted that the implementation of a comprehensive environmental management plan at the regional level is one of the measures appropriate and necessary to ensure effective protection of the marine environment of the CCZ from harmful effects that may arise from activities in the Area. The plan is to be implemented over an initial three-year period, including the designation, on a provisional basis, of a network of nine areas of particular environmental interest. The plan is to be applied in a flexible manner so that it may be improved as more scientific, technical and environmental baseline and resource assessment data are supplied by contractors and other interested bodies. The Council further requested the Legal and Technical Commission to make recommendations relating to the network of areas of particular environmental interest with a view to redefining, where necessary, the size, location and number of required areas of particular environmental interest.
Deep seabed biodiversity

SUMMARY

The range and diversity of species found at the deep seabed in association with mineral deposits are poorly understood and is different for each type of mineral deposit.

Image courtesy Cindy van Dover
Section 6: Training and Capacity Building

SUMMARY

Under Articles 143 and 144 of the Convention, the Authority has a duty to promote marine scientific research in the Area and build the capacity of developing States in deep-sea research and technology.

Established in 2006, the Endowment Fund aims to promote and encourage the conduct of marine scientific research in the Area for the benefit of mankind as a whole, in particular by supporting the participation of qualified scientists and technical personnel from developing countries in marine scientific research programmes, including through training, technical assistance and scientific cooperation programmes. Applications for assistance from the Fund may be made by any developing country or by any other country if the purpose of the grant is to benefit scientists from developing countries. An advisory panel, appointed by the Secretary-General, evaluates applications for assistance from the Fund and makes recommendations to the Secretary-General.

The Secretariat has established a network of cooperating institutions that may be interested in offering places on courses or research opportunities. Members of the network to date include the National Oceanography Centre (United Kingdom); the National Institute of Ocean Technology (India); the French Research Institute for Exploitation of the Sea (IFREMER); the Federal Institute for Geosciences and Natural Resources (Germany); the National Institute of Oceanography (India); the Natural History Museum (United Kingdom); Duke University, North Carolina (United States of America); and the International Cooperation in Ridge-crest Studies (InterRidge), an international, non-profit organization promoting interdisciplinary studies of oceanic spreading centres.

To date a total of 52 scientists or government officials from 33 developing countries have been beneficiaries of financial support from the Endowment Fund.

Contractor training

Contractors with the Authority have a legal obligation to provide and fund training opportunities for trainees from developing States and the Authority. The legal basis for this requirement is set out in the standard terms of contracts and stems from the provisions of the Convention and the 1994 Agreement. (Specifically Article 144 and Annex III, article 15, of the Convention, and section 5 of the Annex to the 1994 Agreement). The purpose of the obligation is to ensure that personnel from developing States are provided with appropriate operational expertise to enable them to participate in deep-seabed mining.
Section 7: Promotion of Marine Scientific Research

SUMMARY

The Authority has a general responsibility to promote and encourage the conduct of marine scientific research in the Area and to coordinate and disseminate the results of such research when available. All States are free to conduct MSR in the Area.

Under article 143 of the Convention, the Authority has a general responsibility to promote and encourage the conduct of marine scientific research in the Area and to coordinate and disseminate the results of such research when available. The most immediate and practical way in which the Authority has begun to implement its responsibilities under the Convention and to fulfil its various mandates under paragraph 5 of section 1 of the annex to the 1994 Agreement, particularly under subparagraphs (f) to (j), has been the establishment of a series of expert workshops, seminars and meetings.

Priorities for international research collaboration have been identified as:
- Biodiversity, species range and rates of gene flow in potential mining areas;
- Sensitivity of deep sea animals and their response to disturbance, as well as the recovery of biological communities over space and time;
- Impacts on the water column above the mine site caused by bottom water, sediment and waste;
- Natural variability in deep ocean ecosystems of space and time

Another way in which the Authority promotes scientific research is through international collaborations. The first major scientific collaboration through the Authority was the Kaplan Project, which presented an analysis of species composition and rates of gene flow of living organisms across the abyssal plain of the CCZ. Another scientific collaboration was a joint project between the Authority and CenSeam aimed at determining the role of seamounts in the biogeography, biodiversity, productivity and evolution of marine organisms and to evaluate the effects of human activity. A current collaboration is with the International Network for Scientific Investigations of Deep-Sea Ecosystems (INDEEP), which was created to maintain and further develop the international collaborations initiated during the Census of Marine Life.
Section 8:
Revenue-sharing under UNCLOS Article 82

SUMMARY

As a quid pro quo for the extension of continental shelf beyond 200 nautical miles, coastal States are required to share part of the revenue from exploitation of non-living resources with other States, through the ISA.

Under article 82 of the Convention, States or individual operators who exploit the non-living resources of the continental shelf extending beyond 200 nautical miles from the baselines of the territorial sea (the “outer continental shelf”) are required to contribute a proportion of the revenues they generate from such exploitation for the benefit of the international community as a whole. Article 82, paragraph 4, gives the Authority responsibility for distributing these revenues “on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them”.

Since 2009, the Authority has begun to explore the complex legal and technical issues associated with the implementation of article 82.

Further reading
- M. W. Lodge and C. Paskal, ‘A Fair Deal on Seabed Wealth’, Chatham House briefing paper 09/01, Royal Institute of International Affairs (Chatham House), United Kingdom, 2009
- Issues associated with the implementation of Article 82 of UNCLOS, ISA Technical Study No. 4, Kingston, 2009.
- Non-living resources of the continental shelf beyond 200 nautical miles, ISA Technical Study No. 5, Kingston, 2010.
Section 9: Structure of the Authority

SUMMARY

165 member States of the ISA as at June 2013. The principal organs of the Authority are the Assembly, the Council, and the Secretariat. Subsidiary bodies are the Legal and Technical Commission and the Enterprise.

In accordance with article 156, paragraph 2, of the Convention, all States parties to the Convention are ipso facto members of the Authority. As of 1 June 2013, there were 165 members of the Authority (164 States and the European Union).

The principal organs of the Authority are the Assembly, the Council, and the Secretariat. The Council is the executive body of the authority and consists of 36 States elected according to a formula which is intended to ensure representation of each of the main interest groups, as well as equitable geographic representation. There are two subsidiary bodies of the Council: the Legal and Technical Commission, and an Economic Planning Commission. For the time being, the functions of the Economic Planning Commission are to be carried out by the Legal and Technical Commission.

The administrative expenses of the Authority are funded by assessed contributions of members until the Authority has sufficient funds from other sources to meet those expenses. The scale of assessments is based on the scale used for the regular budget of the United Nations, adjusted for differences in membership.